

# **Advanced Decision Support Technologies For Wildfire and Disaster Event Monitoring**

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Mitigation and monitoring of disaster events necessitates rapid information ingestion within critical decision support frameworks. Current orbital technologies for acquiring that disaster event information are limited in multiple domains, including temporal, spatial, and radiometric. Sub-orbital resources such as manned remote sensing aircraft are also limited in capabilities. These limitations include mission durations, avoidance of dangerous flying conditions and limited range of operations. These factors are all critical to the observation of wildfire conditions and the critical need to provide that information to disaster management personnel at the incident as rapidly as possible. <BR><BR>A collaborative effort between two US federal agencies, NASA and the US Forest Service, is showcasing existing and emerging technologies for improving the decision support network for disasters, specifically wildfires. Four major elements of this collaborative research and applications effort are highlighted: 1) The development of improved thermal IR imaging systems; 2) Improved real-time data telemetry technologies; 3) New and evolving Unmanned Aerial Vehicle (UAV) platform utility, and 4) New technologies in fully integrated disaster decision support management systems. The capabilities of these integrated technologies will be demonstrated in late summer 2005 during the Western States UAV Fire Mission. The demonstration will showcase long-duration (~24-hour), long-range (+4500 nm) and high altitude (~45K feet MSL) platform imaging capabilities, Over-The-Horizon (OTH) satellite data communications, real-time automated image processing, and a workstation environment for displaying a collaborative integrated decision portal for ingesting, sharing, and disseminating disaster information. This paper will discuss these elements and demonstrate how these disparate components can be integrated to provide improved disaster event monitoring. <BR>